

Components of Natural

The Natural nucleus is a collection of service routines that comprise the kernel of Natural.

This section is intended to give you an overview of the main Natural components and how they interact to provide Natural's functionality as a development tool:

- Natural Compiler
 - Natural Optimizer Compiler
 - Natural Runtime
 - Natural Buffer Pool
 - Natural System Files
 - Natural Parameters
 - Natural Commands
 - Natural Programming Language
 - Natural Editors
 - Natural Utilities
 - Database Interfaces
 - Web Interface
 - XML Toolkit
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Natural Compiler

The Natural compiler creates the executable (cataloged) form of any source of Natural programming object (see the relevant section). During the compilation process, the Natural statements in the object source are converted into internal Natural object code.

Natural Optimizer Compiler

Only applies if the Natural Optimizer Compiler is installed.

The Natural Optimizer Compiler optimizes Natural object code (see above) by translating it into machine code.

Related Topic:

- Natural Optimizer Compiler documentation

Natural Runtime

The Natural Runtime provides the environment necessary for executing cataloged Natural programming objects (see the relevant section) and Natural applications. The Natural runtime interprets Natural object code.

Related Topic:

- Natural Programming Objects

Natural Buffer Pool

The Natural buffer pool is a storage area used by the Natural nucleus to execute cataloged Natural programming objects (see the relevant section). When a Natural object is requested for execution, it is read from the Natural system file (see below) and placed in the buffer pool, where it can be used by several users simultaneously.

Conceptually, the Natural buffer pool serves as a storage area for reentrant Natural objects.

Related Topics:

- Natural Buffer Pool - Natural Operations for Mainframes documentation
- Natural Storage Management - Natural Operations for Mainframes documentation

Natural System Files

Natural system files are used to store Natural object sources and executable (cataloged) Natural objects and/or control data.

Listed below are the system files provided:

System File	Contains
FNAT	All Natural programming objects (see the relevant section) delivered by Software AG.
FUSER	Natural programming objects generated by the user.
FSEC	Only applies if Natural Security is installed. Control information required by Natural Security.
FSPOOL	Only applies if Natural Advanced Facilities is installed. Control information and spool reports required by Natural Advanced Facilities.
FDIC	Information on data definition modules (DDMs). If Predict is installed, FDIC also contains the data for the Predict dictionary system. If the Natural Development Server is installed, FDIC also contains application descriptions.

Related Topics:

- Natural Programming Objects
- Natural Security documentation
- Natural Advanced Facilities documentation
- DDMs - Database Access - Natural Programming Guide
- Predict documentation
- Single Point of Development (Natural Development Server) documentation

Natural Parameters

Natural parameters are used to adjust the Natural environment to your needs. With a Natural parameter you can, for example, set defaults for report creation, define the size of a report or define the size of the editor area.

Most of the characteristics of a Natural environment are predefined by Software AG. However, depending on your individual requirements, you can override parameters that are set by default.

There are different types of parameter: profile parameters and session parameters.

The section below contains information on:

- Profile Parameters
- Session Parameters
- Parameter Hierarchy

Profile Parameters

Profile parameters are specified statically or dynamically.

Static parameters are specified in the Natural parameter module NATPARM, during the installation of Natural. They are used as the default for each Natural session started.

Dynamic parameters are specified at the startup of a Natural session. You can predefine a set of dynamic parameters with the Natural SYSPARM utility.

Session Parameters

Session parameters are specified within an active Natural session and/or within a Natural programming object. The main purpose of session parameters is to control the execution of running Natural programs.

Parameter Hierarchy

There is a hierarchical structure of the levels on which Natural parameters can be set as described in the Natural Operations for Mainframes documentation. A parameter value set on a higher level overrides the value defined on a lower level. For example, when you specify a parameter dynamically, the new parameter value overrides the static specification as set for the corresponding parameter in the Natural parameter module.

Related Topics:

- Profile Parameter Usage - Natural Operations for Mainframes documentation
- Profile Parameters - Natural Parameter Reference documentation
- Using a Natural Parameter Module - Natural Operations for Mainframes documentation
- Session Parameters - Natural Parameter Reference documentation
- SYSPARM Utility - Natural Utilities documentation
- Natural Parameter Hierarchy - Natural Operations for Mainframes documentation.

Natural Commands

Natural commands are used to perform functions during a Natural session as described in the section Executing Commands and Menu Functions.

The section below contains information on the different categories of Natural commands: system commands, terminal commands, editor and utility commands.

- System Commands
- Terminal Commands
- Editor and Utility Commands

System Commands

Natural system commands perform functions you need to create, maintain or execute Natural programming objects. In addition, Natural system commands are used to monitor and administer your Natural environment.

Related Topics:

- [Introducing System Commands - Natural System Command Reference documentation](#)
- [System Commands Grouped by Functions - Natural System Command Reference documentation](#)
- [System Command List - Natural System Command Reference documentation](#)
- [System Command Syntax - Natural System Command Reference documentation](#)
- [Executing Commands and Menu Functions](#)

Terminal Commands

Natural terminal commands are used, for example, to:

- Arrange the screen display and layout, such as the positioning of the PF-key and message line, and the assignment of colors:
- Obtain debug information on the current environment;
- Interrupt a current Natural operation.

A terminal command starts with a control character that can be defined by a Natural session parameter. The default control character is the percent (%) sign. You can invoke a terminal command while an application is executing. In addition to the Natural command prompts, terminal commands can be entered in any alphanumeric input field.

Related Topics:

- [Screen Design - Designing User Interfaces - Natural Programming Guide](#)
- [Copying Data from a Screen - Dialog Design - Designing User Interfaces - Natural Programming Guide](#)
- [Terminal Commands Grouped by Function - Natural Terminal Commands documentation](#)
- [Terminal Command List - Natural Terminal Commands documentation](#)

Editor and Utility Commands

In addition to Natural system and Natural terminal commands, each Natural editor and Natural utility provides its own commands that only apply to this very environment. These commands are documented in the relevant section of the editor or utility documentation.

Natural Programming Language

The Natural programming language consists of:

- Natural Statements
- Natural System Functions
- Natural System Variables

Natural Statements

Natural statements are programming instructions used to create a Natural program source.

When the program source has been created, the source is compiled into an executable Natural object by using the Natural system command CATALOG or STOW.

Related Topics:

- [Statements - Overview - Natural Statements documentation](#)
(including an alphabetical list of Natural statements)
- [SQL Statements - Overview - Natural Statements documentation](#)
- [Statements Grouped by Functions - Natural Statements documentation](#)
- [Syntax Symbols and Operand Definition Tables - Natural Statements documentation](#)
- [CATALOG, STOW - Natural System Command Reference documentation](#)

Natural System Functions

Natural system functions perform mathematical functions or functions used during break controls executed with the AT BREAK statement.

Related Topics:

- AT BREAK - Natural Statements documentation
- Alphabetical List of Natural System Functions - Natural System Functions documentation
- Natural System Functions for Use in Processing Loops - Natural System Functions documentation
- Mathematical Functions - Natural System Functions documentation

Natural System Variables

Natural system variables are standard variables that are provided and generated by Natural. System variables are, for example, used to obtain the date and time.

Related Topics:

- System Variables - Natural System Variables documentation

Natural Editors

Natural provides three editors: the program editor, the data area editor, the map editor and the DDM editor:

- Program Editor:
Used for creating and maintaining programs, subroutines, subprograms, help routines, copycodes and texts.
- Data Area Editor
Used for creating and maintaining global data areas, local data areas, and parameter data areas.
This editor has a columnar format that is designed for defining the data used in Natural programs or routines.
- Map Editor
Used for creating and maintaining maps (screen layouts) referenced in a program's INPUT or WRITE statement.
The map editor allows direct manipulation of the fields used in an input or output map; the extended field editing feature facilitates the definition of fields; moreover, processing rules can be attached to fields in the map.
- DDM Editor
Used for editing and maintaining data definition modules (DDMs). The DDM editor is part of the Natural SYSDDM utility (see also Natural Utilities below).

Related Topics:

- Natural for Mainframes - Tutorial
(Examples of how to use editors)
- Natural Editors documentation including Tutorial - Using the Map Editor
- DDMs - Database Access - Natural Programming Guide

Natural Utilities

Natural utilities are tools that provide a set of functions, such as maintaining error messages, debug environments or buffer pools.

Natural utilities are usually menu-driven but also provide commands for directly executing the utility functions available.

Related Topics:

- Utilities Grouped by Function - Natural Utility documentation
- Utility List - Natural Utility documentation

Database Interfaces

Natural provides an interface for accessing database or file management systems, such as Adabas, SQL and VSAM.

Related Topics:

- Adabas documentation
- Natural for SQL/DS documentation
- Natural for VSAM documentation
- Natural for DB2 documentation
- Natural for DL/I documentation

Web Interface

The Natural Web Interface provides a link between a web server (HTTP server) and a Natural mainframe environment.

The Natural Web Interface comprises three modules:

- The Natural system library SYSWEB which contains all Natural modules.
- Natural Web Server Extensions - the part which provides the interface to the web server on the same machine.
- The necessary middleware: EntireX or Entire Broker using RPC technology.

Related Topic:

- Natural Web Interface documentation

XML Toolkit

The Natural XML Toolkit is a set of tools for XML processing which provides functionality required for the integration of XML processing into Natural.

A Natural data definition can be generated from an XML Document Type Definition (DTD), and vice versa. The content of a Natural variable can be serialized into an XML document, and an XML document can be parsed into a Natural variable.

The Natural system library SYSEXXT contains all modules of the XML Toolkit.

Related Topic:

- XML Toolkit documentation